

**ABSTRACT OF THE DISCLOSURE**

A technique for routing data within an optical network having a plurality of network nodes is disclosed.

In one embodiment, the technique is realized by

5 receiving data at a first network node via a first optical signal having a first wavelength. The first wavelength corresponds to a first optical frequency, and the first optical frequency is mapped to a first binary representation. The first binary representation is

10 divided into a first plurality of fields, wherein at least one of the first plurality of fields corresponds to a routing label in a first label stack. A top routing label in the first label stack indicates a second network node. Based at least partially upon the top routing

15 label, the data is transmitted from the first network node to the second network node via a second optical signal having a second wavelength. The first wavelength may be either the same as or different from the second wavelength.